TRANSPORTATION

CITY OF DURHAM

Vision Zero Durham

Mohammad Islam and Charles Menefee | April 25, 2019

Agenda

Vision Zero – Durham presentation has two parts:

1. Vision Zero Durham
2. Vision Zero Crash Reduction Report

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VISION ZERO DURHAM

WALK SAFE. RIDE SAFE. DRIVE SAFE

Our Vision

Working together, we can achieve zero fatalities on our roadways because every person in our community matters.

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Key Partners

DCHC Metropolitan Planning Organization
Planning Tomorrow Today

GO Durham

Duke University

NC Vision Zero

bike walk durham.org

Timeline

2003 Launched Accident Reduction Program

2015 Accepted the Mayor's Challenge for Safer People and Safer Streets

Fall 2016 and Spring of 2017 Met internally and with internal stakeholders; gathered crash data

Spring and Summer 2017 Developed Vision Zero Durham brand

August 1, 2017 Kickoff meeting with Transportation Director, Mayor, Fire Chief, NC Vision Zero, and key stakeholders

August 9, 2017 DCHC MPO Resolution in support Vision Zero Durham

August 18, 2017 Hosted meeting with Leah Shahum, founder of the Vision Zero Network

September 18, 2017 City Council passed Vision Zero resolution

September 12-15, 2017 Hosted Vision Zero Durham Week

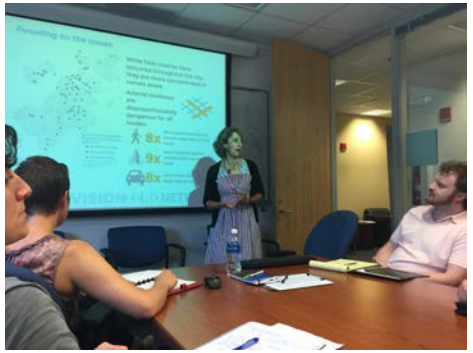
November 17, 2017 Steering Committee meeting

November 19, 2017 Attended NC Vision Zero World Day of Remembrance

January 2018 Communication and Technical Task Forces Meet

February 2018 Subcommittees meet for the first time

April 2018 Steering Committee meeting with subcommittee reports



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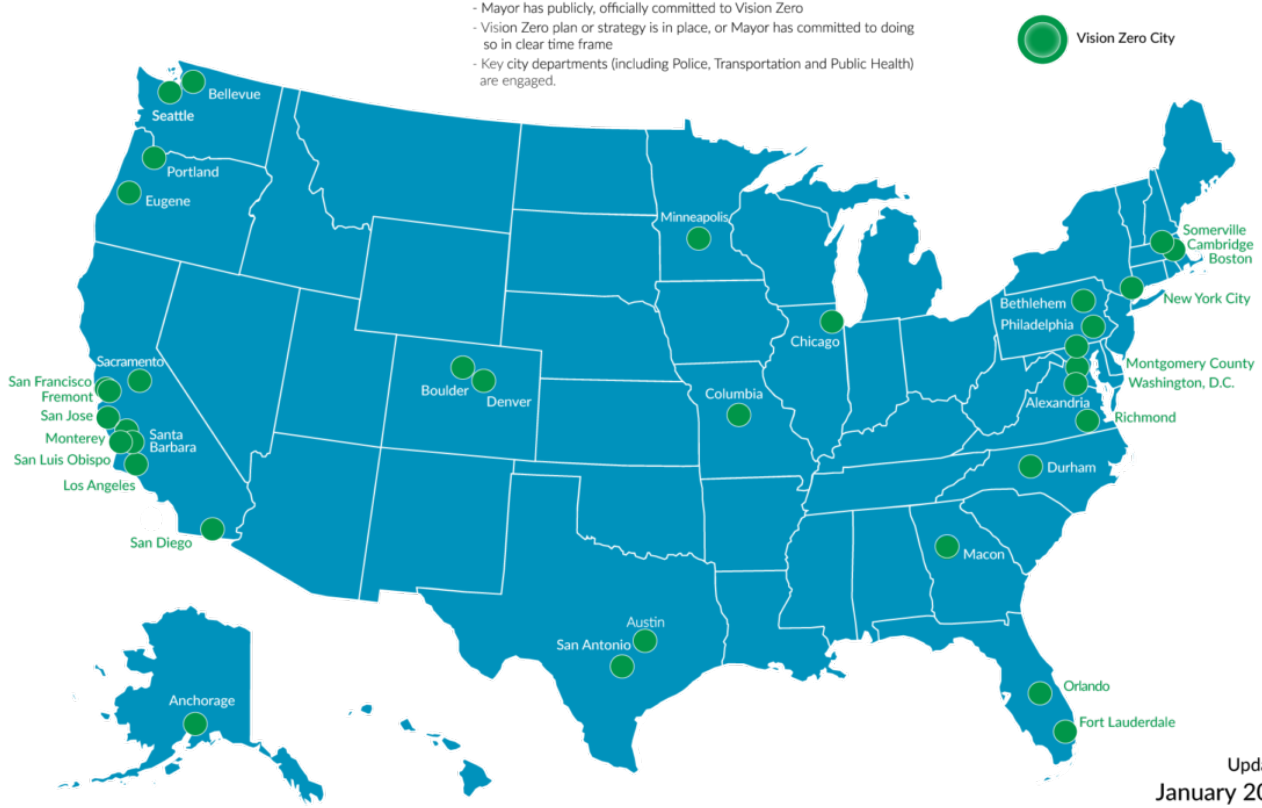
Vision Zero Cities

A Vision Zero City meets the following minimum standards:

- Sets clear goal of eliminating traffic fatalities and severe injuries
- Mayor has publicly, officially committed to Vision Zero
- Vision Zero plan or strategy is in place, or Mayor has committed to doing so in clear time frame
- Key city departments (including Police, Transportation and Public Health) are engaged.



Updated
January 2018

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GETTING TO VISION ZERO
5 ESSENTIAL ELEMENTS

EDUCATION Communicate the importance of safety for all on our roadways whether a person is driving, walking, bicycling, or using transit.

ENCOURAGEMENT Encourage residents to adopt safer roadway behaviors. Recognize residents who are already doing the right thing.

ENGINEERING Engineer improvements to reduce speeds and potential conflicts, and establish safer and fully accessible crossings, walkways, and bike ways.

ENFORCEMENT Enforce existing traffic safety laws. Continue to support safety campaigns and initiatives such as Click It or Ticket, Buzzed Driving is Drunk Driving, and Booze It and Lose It.

EVALUATION Evaluate traffic safety efforts in order to monitor the effectiveness of our strategies.

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Equity Shouldn't Be Afterthought

- Was not initially an "E," but should have been
- Low income people 2X as likely as high income people to be killed while walking
- African American children are 2X as likely as white children to be killed while walking
- Equity and infrastructure

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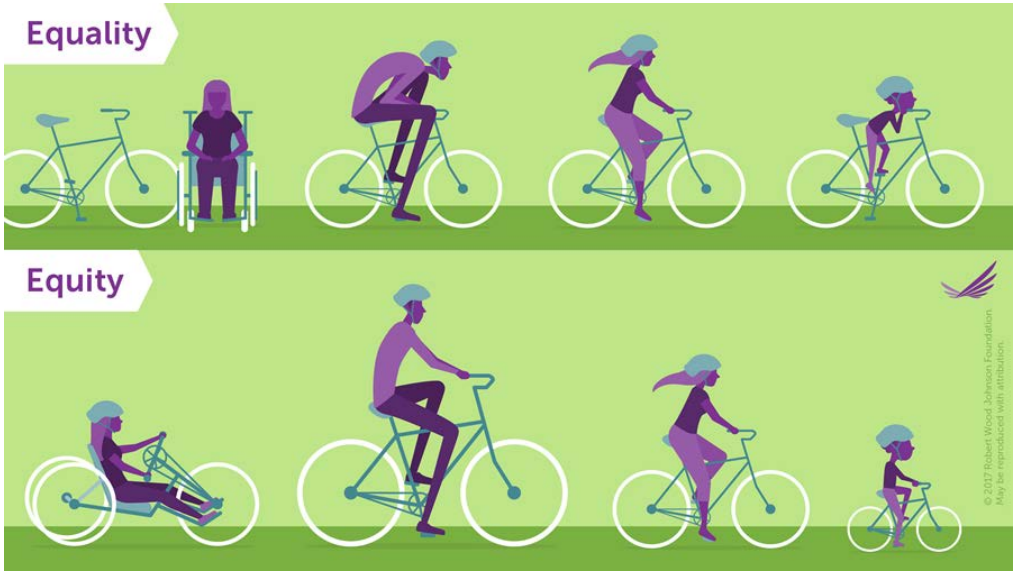
We are still learning…

- A data driven approach should advance equity
- Representation
- Outreach
- Enforcement



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I PLEDGE TO:

- Only drive while sober, alert, and free of distractions.
- Look out for others, especially children, the elderly, persons with disabilities, and people walking or biking.
- Slow down and look around, especially at intersections and driveways.
- Practice the rules of the road, including yielding to people walking.
- Share the Vision Zero pledge with my friends and family.

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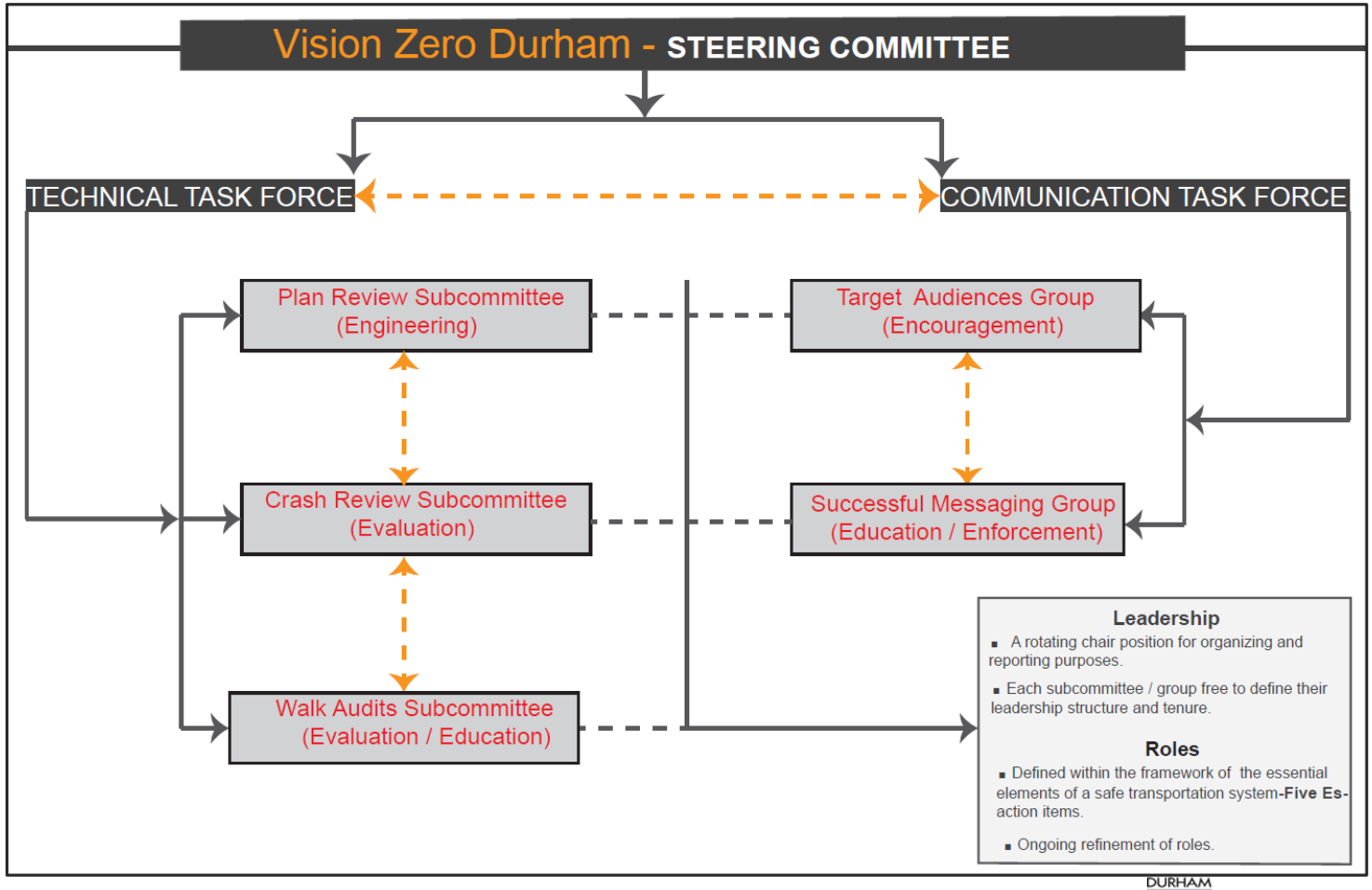
Creating Our Action Plan

- Before you write your plan, make a list of everything you do that already advances Vision Zero
- The plan is organized around the "E's"
  - Rank strategies based on cost effectiveness
- The plan is a living document



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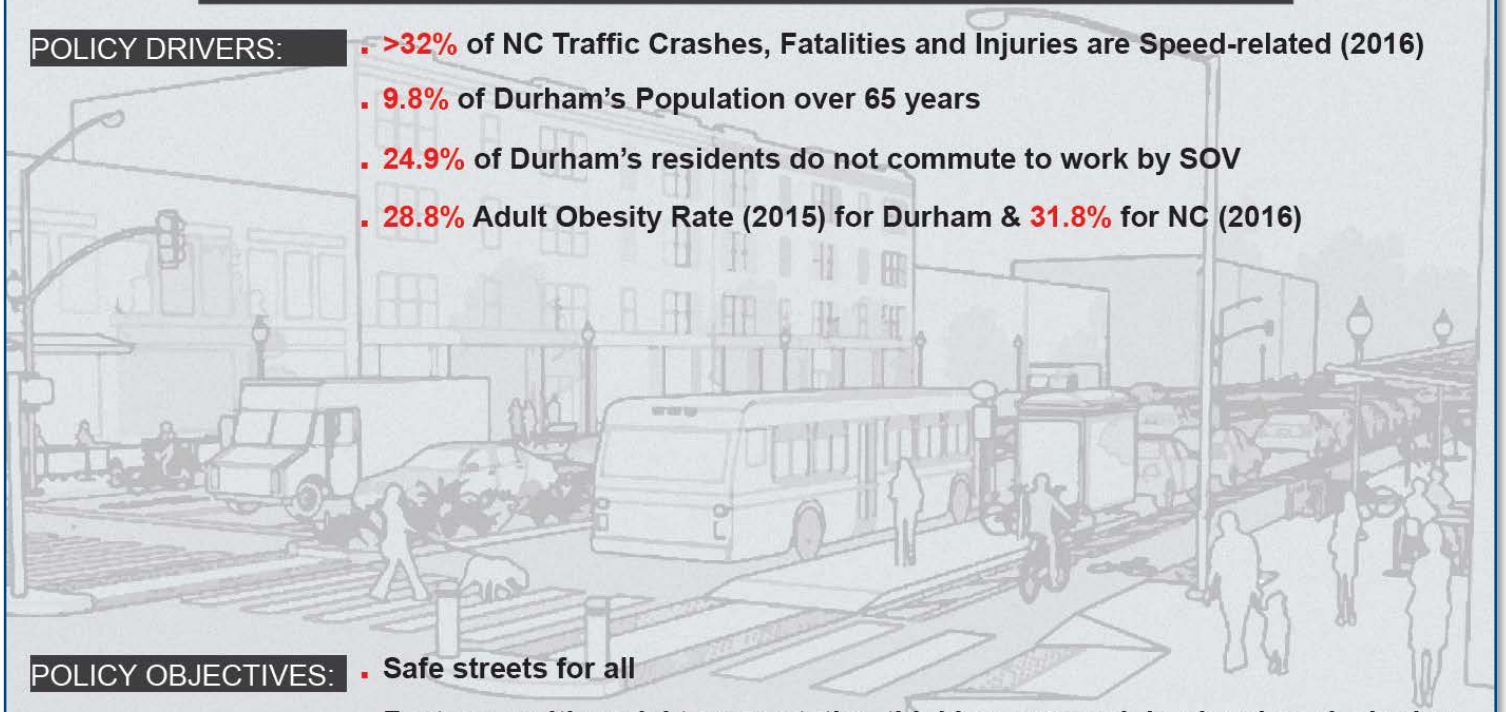
DURHAM COMPLETE STREETS DRAFT POLICY



POLICY DRIVERS:

- **>32%** of NC Traffic Crashes, Fatalities and Injuries are Speed-related (2016)
- **9.8%** of Durham's Population over 65 years
- **24.9%** of Durham's residents do not commute to work by SOV
- **28.8%** Adult Obesity Rate (2015) for Durham & **31.8%** for NC (2016)

POLICY OBJECTIVES:

- Safe streets for all
- Foster a multi-modal transportation thinking approach in planning, designing, retrofitting, performance measurement, reporting and maintenance
- Enhance public health & environment -- promote human-powered modes, reduce GHG emissions and advance stormwater management strategies

North Carolina 2016 Traffic Crash Facts | United States Census Bureau 2010 Data | https://stateofobesity.org/states/nc/--04/04/2018,12:00 PM | https://www.opendatanetwork.com/entity/0500000US37063/Durham_County_NC/ --04/04/2018, 12:30 PM

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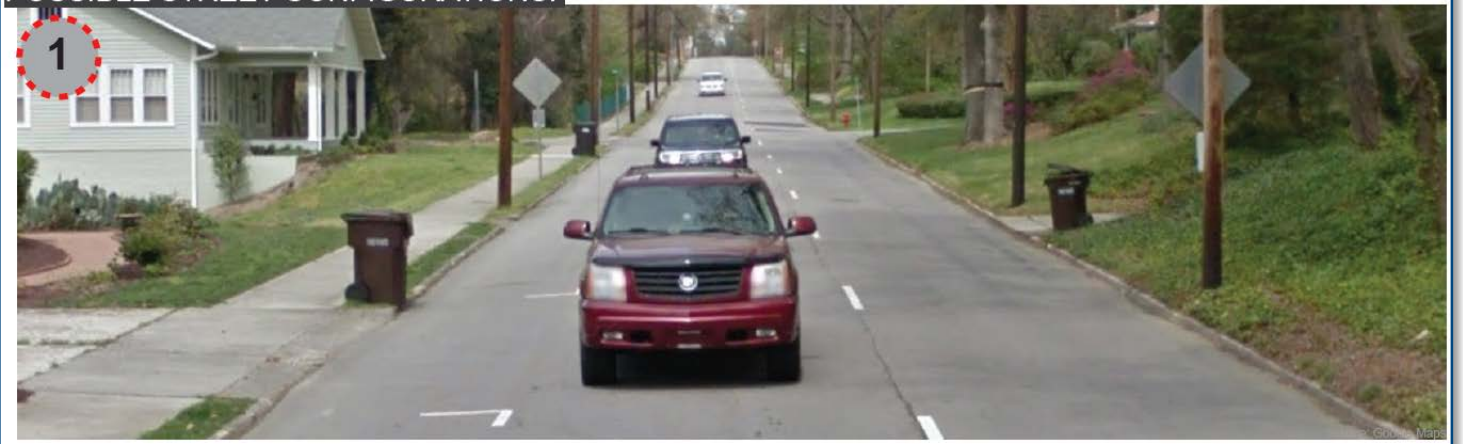
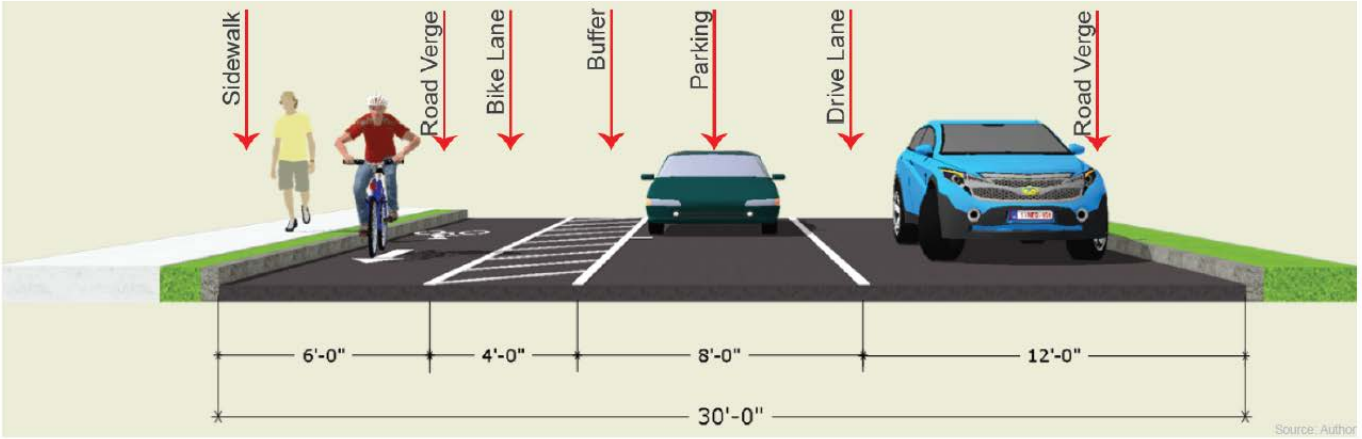
POSSIBLE STREET CONFIGURATIONS:

1





Source: Author

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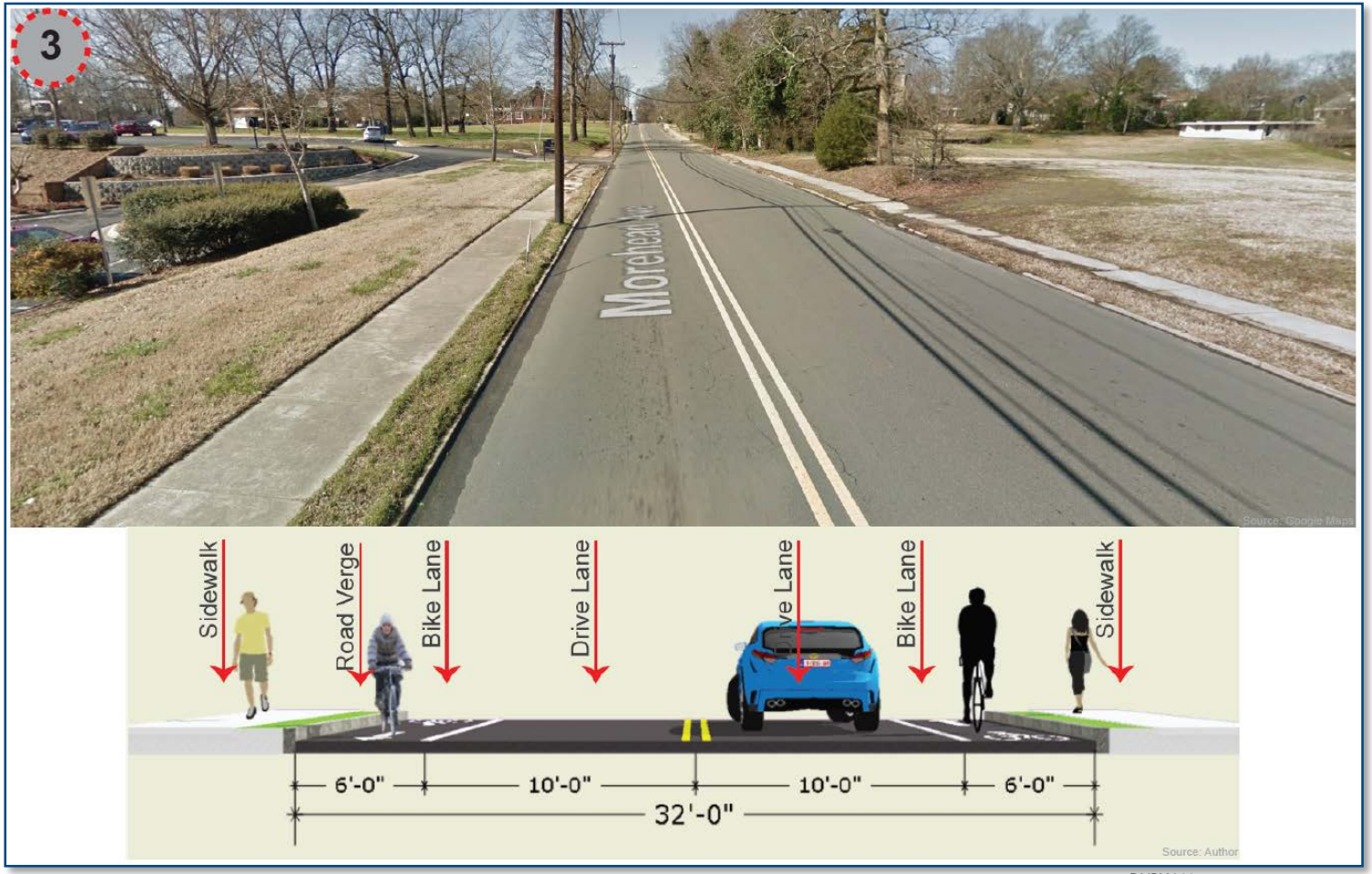

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CURRENT STATUS AND NEXT STEPS:

- **Draft Complete Streets Policy**
- **Complete Streets Development and Collaboration Workshop**
  - Durham Complete Streets Workshop Participant Survey
  - Presentation from Transportation Industry Professionals
  - Complete Streets Game

- **Public Complete Streets Workshop**
  - Understand the benefits of Complete Streets
  - Status of Complete Streets Implementation in Durham
  - How to refine the Complete Streets Process and identfying implementable action items
- **Durham Complete Streets Policy Adoption by the City Council**

SPEED REDUCTION - ROAD RECONFIGURATION & MEDIAN

INITIATIVE FRAMEWORK: ▪ **Among FHWA's Speed Management Toolkit & Proven Safety Countermeasures**

"72% of Pedestrian fatalities occur at non-intersection locations, and vehicle speeds are often a major contributing factor."

"One-fifth (20%) of children 14 and younger killed in traffic crashes were pedestrians with 10-to-14 and 50-to-54 age groups havingthe highest percentage of pedestrian traffic fatalities."

Road Diets
(Roadway Reconfiguration)

A "Road Diet," or roadway reconfiguration, can improve safety, calm traffic, provide better mobility and access for all road users, and enhance overall quality of life.

SAFETY BENEFIT:

4-Lane → 3-Lane
Road Diet Conversions
19-47%
Reduction in total crashes

Source: *Evaluation of Lane Reduction "Road Diet" Measures on Crashes*, FHWA-HRT-10-053.

Medians and Pedestrian Crossing Islands in Urban and Suburban Areas

Median and pedestrian crossing islands near a roundabout.

Source: www.pedbikeimages.org / Dan Burden

SAFETY BENEFITS:

Raised Median
46%
Reduction in pedestrian crashes

Pedestrian Crossing Island
56%
Reduction in pedestrian crashes

Source: *Desktop Reference for Crash Reduction Factors, FHWA-SA-08-011, September 2008, Table 11.*

PROJECT W. CLUB BLVD.

- **Local Street maintained by the City of Durham**
- **Functional Class: Minor Arterial with a speed limit of 35 MPH**
- **Annual Average Daily Traffic (AADT) ~ 6,300 on average, 9,800 on the eastern end approaching Broad Street**

https://safety.fhwa.dot.gov/provencountermeasures/ --04/05/2018, 8:10 AM ; National Highway Traffic Safety Administration, *Traffic Safety Facts - 2016 Data - Pedestrians*. Report DOT HS 812 493, March 2018 (Revised)

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W. CLUB BOULEVARD (FROM HILLANDALE ROAD TO BROAD STREET - 0.92 MILES)

DEVELOPMENT PROCESS:

- Project realized in 2 phases; 1st Phase--Oval Park Median completed in 2008 & 2nd Phase --Pavement markings for bike lanes and parking completed in 2016
- Early and continued neighborhood involvement throughout the project cycle

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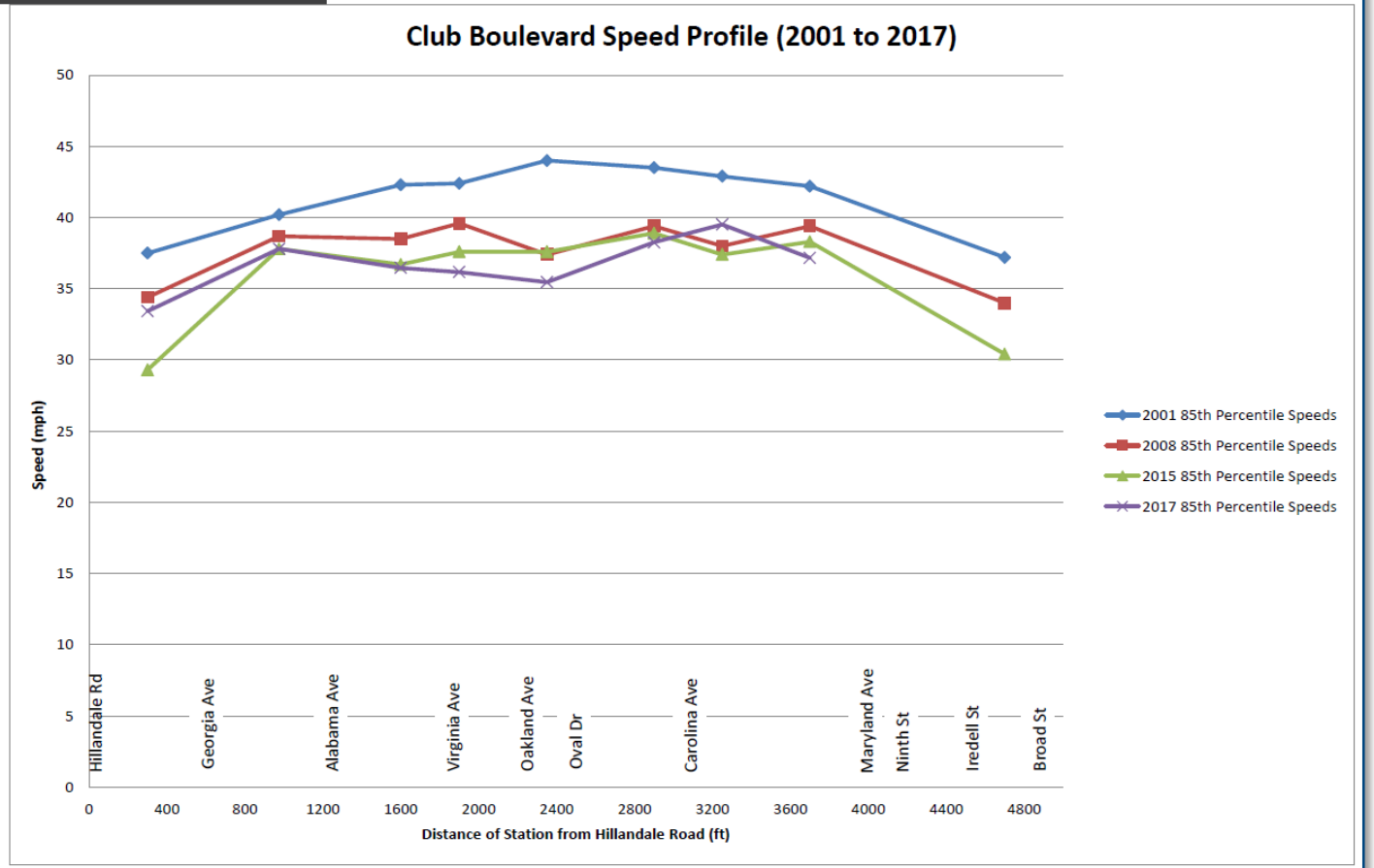
SPEED STUDY RESULTS:



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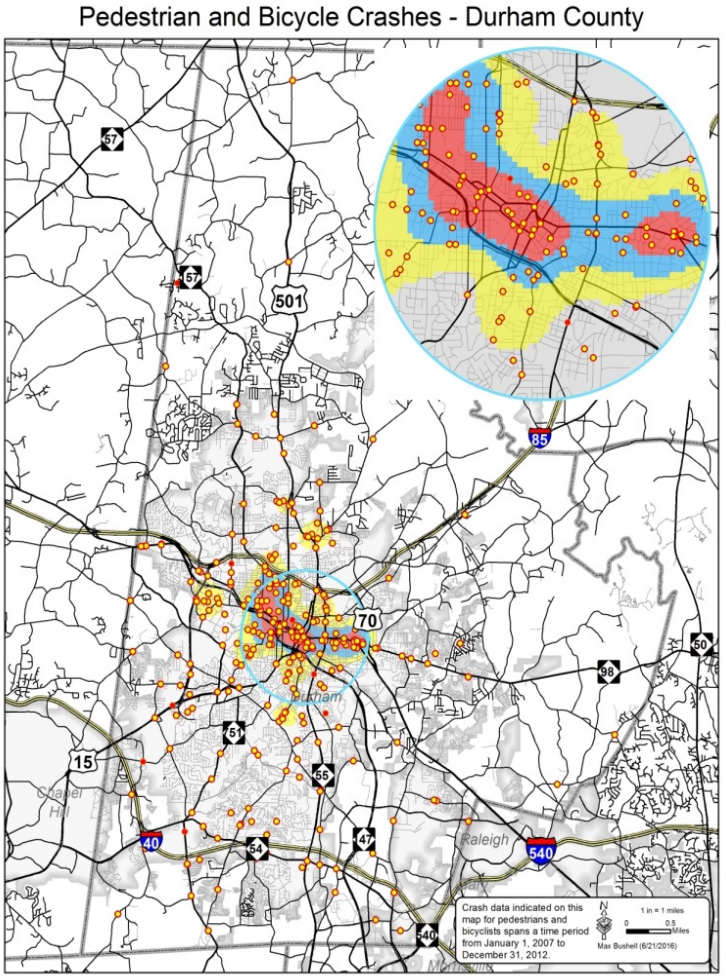
LESSONS SO FAR:

- Median installation appears to have achieved greater speed reduction (not just at Oval Park, but the entire corridor) than pavement marking reconfiguration, at least for now.
- A multi-strategy traffic calming approach is better than relying on a single strategy for speed reduction.
- Community participation and goodwill throughout the project is key-- however, be ready for competing needs, and,
- Trade Offs among competing needs to achieve Safety is the name of the game!

Next Steps

- Finalize Vision Zero Action Plan
- Finalize and Adopt Complete Streets Ordinance
- Improve Data Process and Ensure Consistency
- Improve Public Outreach Efforts
- Sub-committees Meet/Present Findings to Technical and Communication Task Force, and Steering Committee
- Begin “testing” through Tactical Urbanism/Demo Projects



What We Learned…

- You Don't Need a Plan (initially), But You Need a Champion
- You Don't Need Funding, But You Need Creativity
- You DO Need the Support of Key Stakeholders
- Leverage Partnerships
- To Save Lives, Start Now!

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Vision Zero Crash Reduction Report

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Data and Materials Review

Mohammad Islam and Charles Menefee

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Overview

- Crash statistics overview
- High density crash networks: motor vehicle and pedestrian
- Equity analysis: methodology and results
- Sample report maps
- Discussion

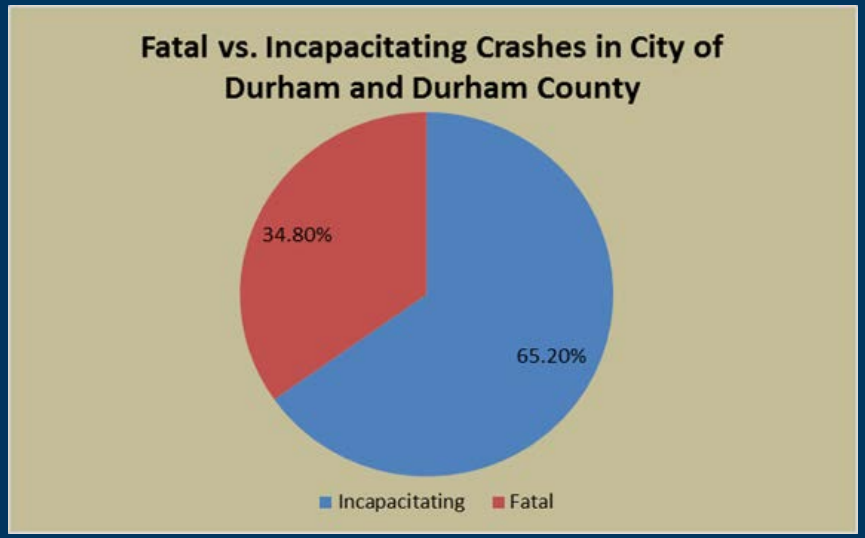
Study Focus

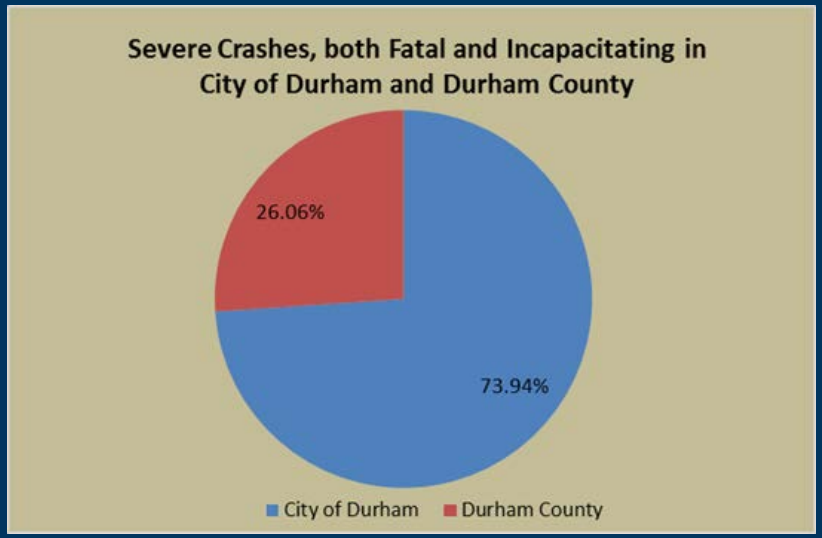
- Location: City and County of Durham
- Time Period: 2012 through 2016
- Crashes: Fatal (K) and Incapacitating (A) crashes

Crash Data Overview

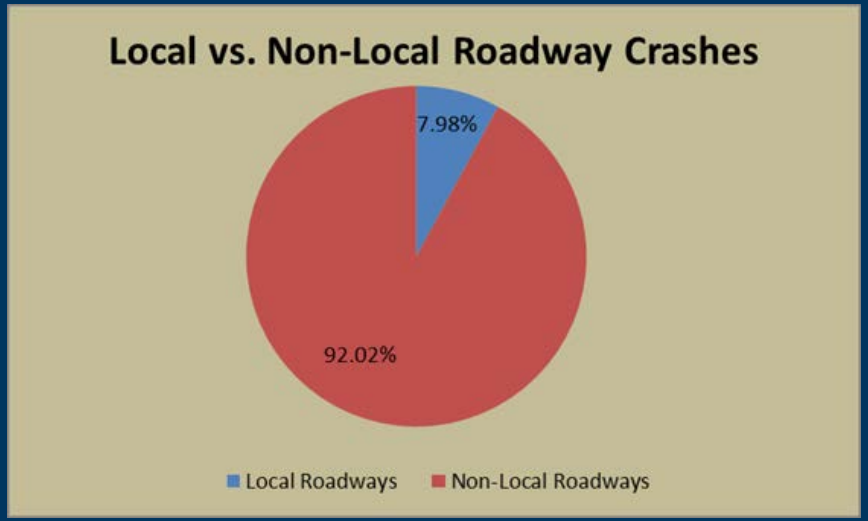
- 376 fatalities or incapacitating injuries
- 54 pedestrians
- 6 bicyclists

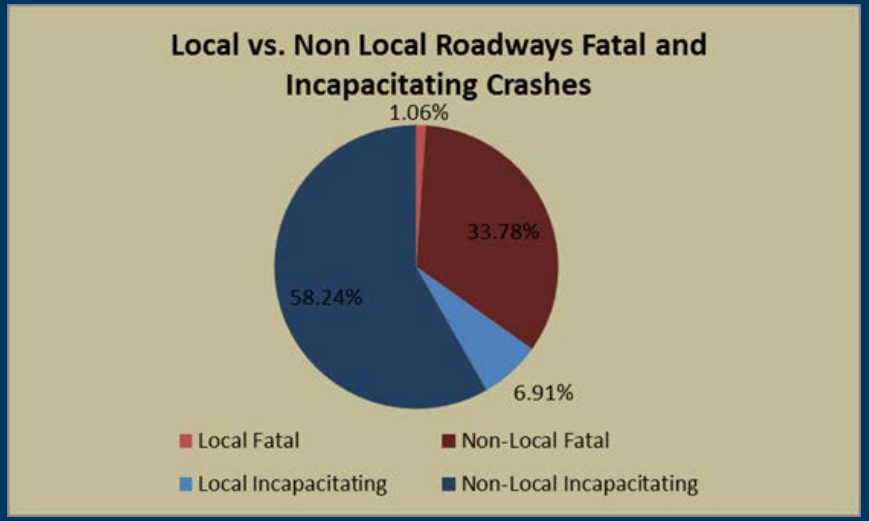
Statistics Overview: City and County Crash Break Down





Statistics Overview: Local and Non-Local Roadways





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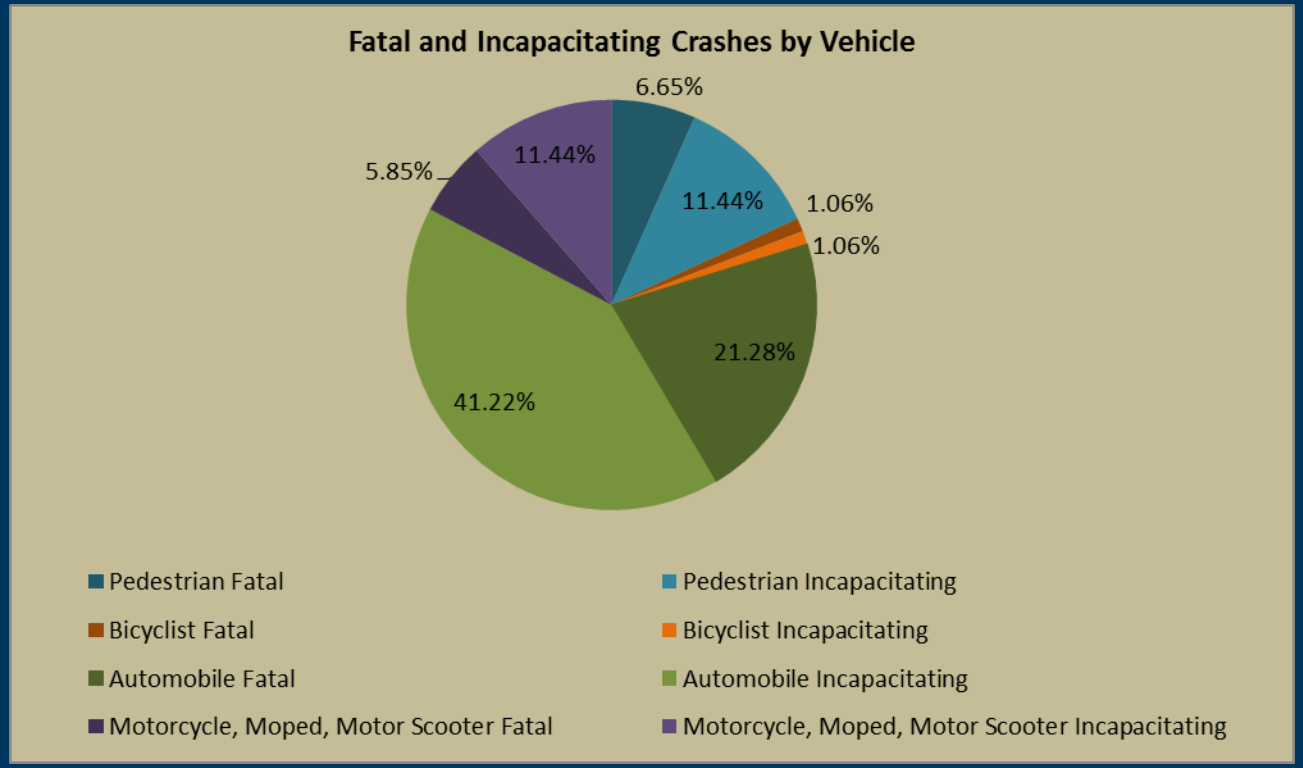
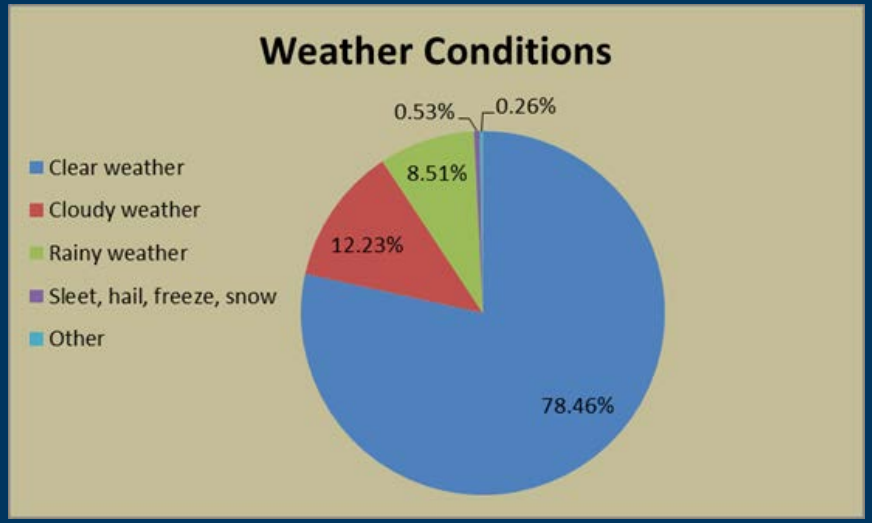
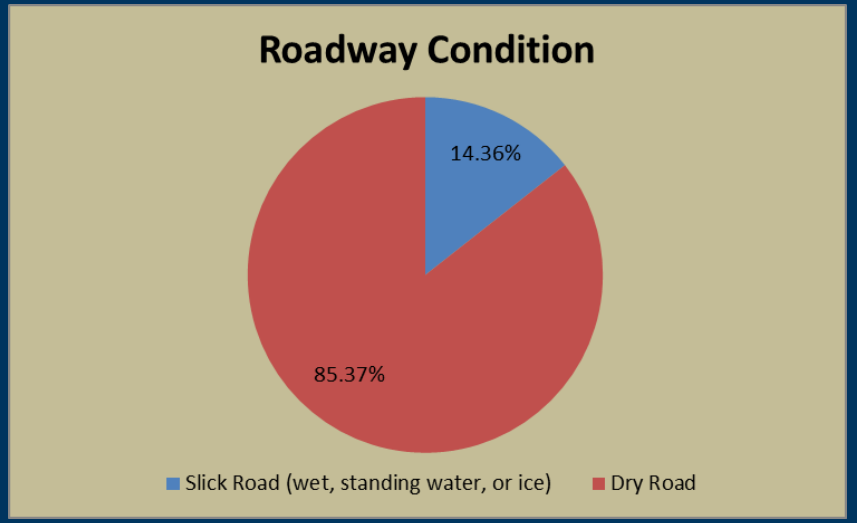
Statistics Overview: Crash Severity by Vehicle

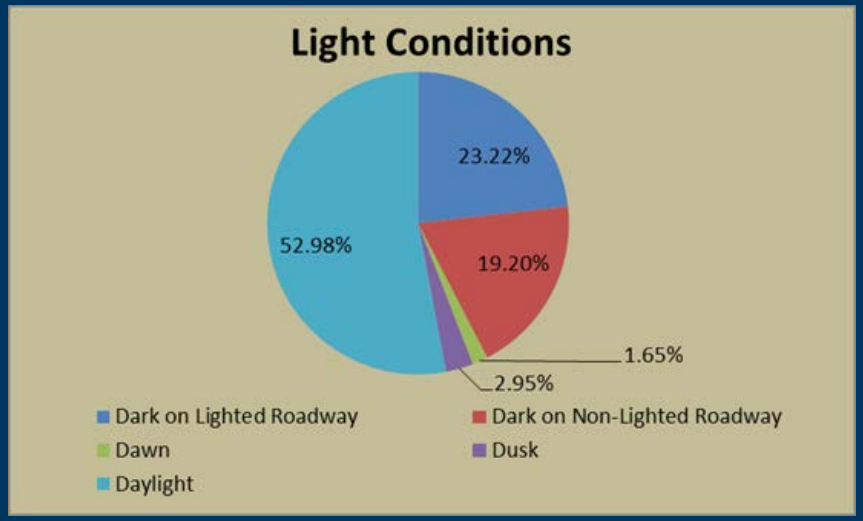


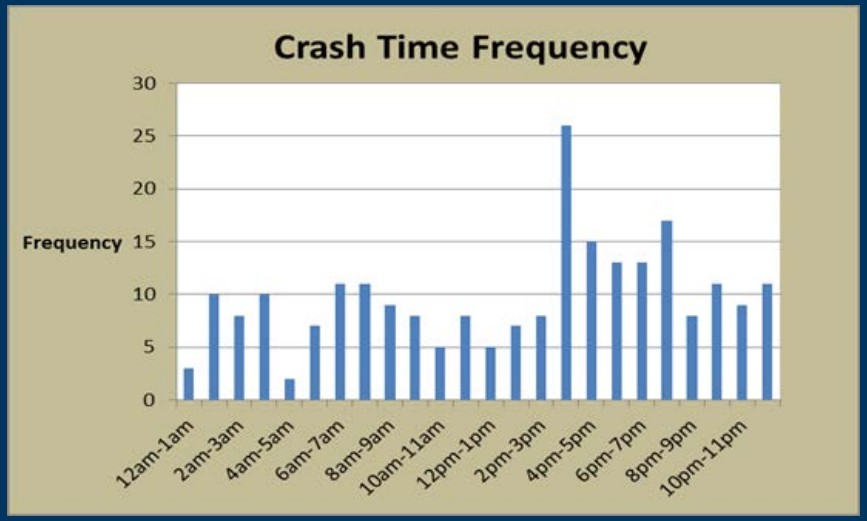
Statistics Overview: Weather and Road Conditions





Statistics Overview: Light Conditions and Time





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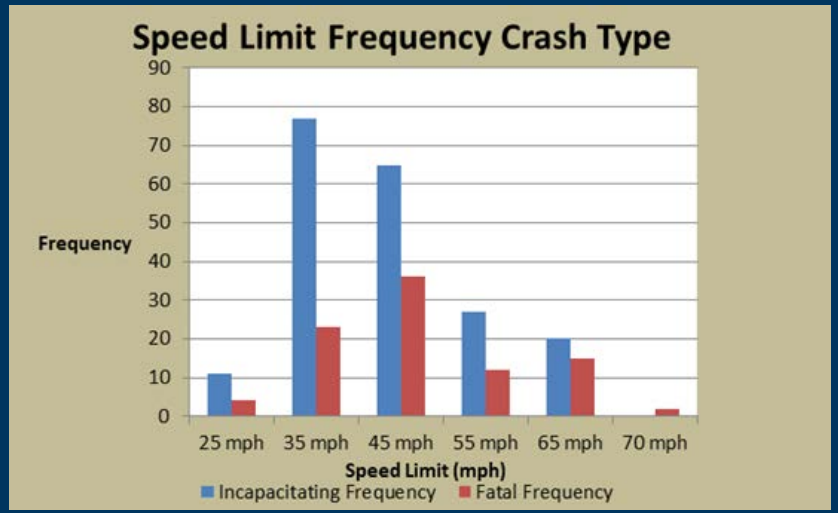
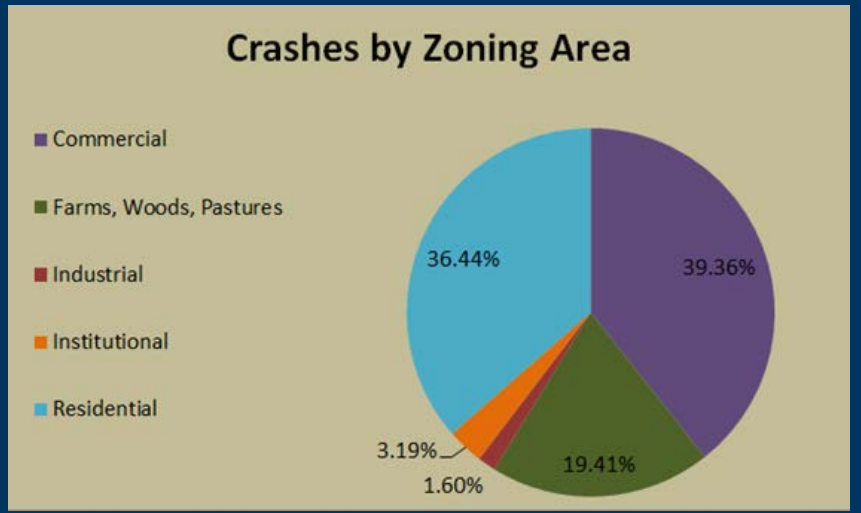
Statistics Overview: Speed Limit and Zoning Area





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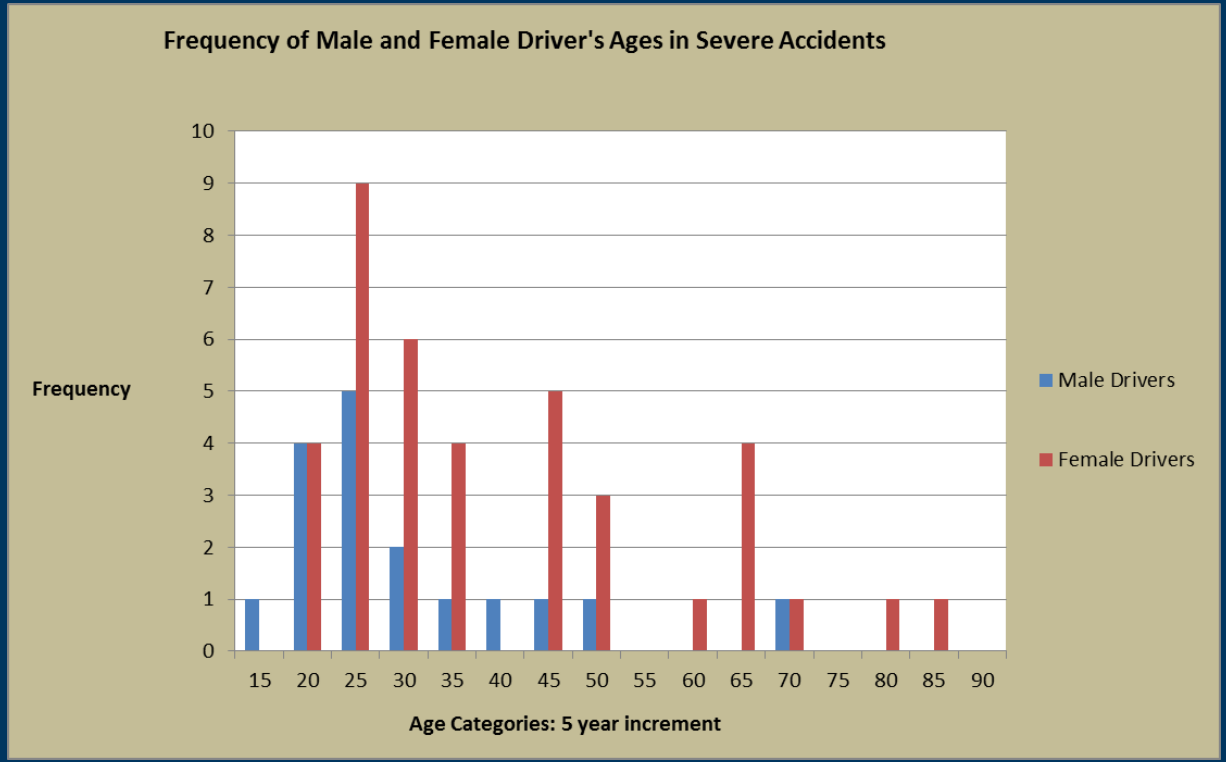
Statistics Overview: Frequency by Gender and Age



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Crash Location Statistics: All

- 330 fatalities or incapacitating crash locations
- 89.5% occurred off of interstate highways
- 78.2% of non-interstate crashes occurred on 35 or 45 mph roadways

Crash Location Statistics: Pedestrian

- 81.4% of pedestrian crashes occurred on 35 or 45 mph roadways
- Two-thirds of pedestrian crashes occurred in bus route roadways
- 70-85% of pedestrian crashes occurred on roads without continuous sidewalk

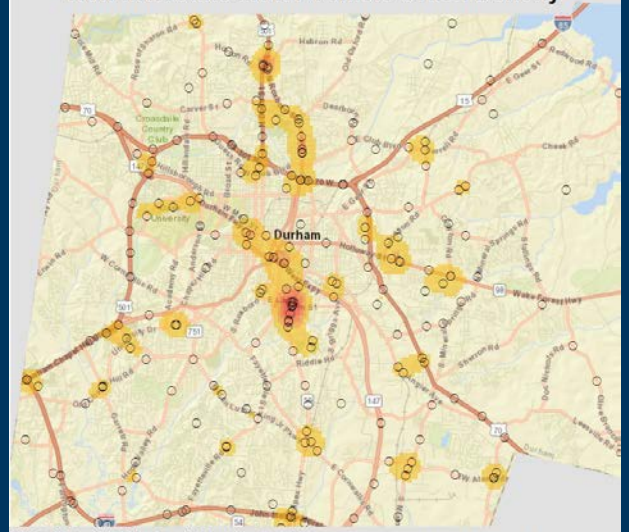
Crash Location Statistics: Bicycle

Bicycle Crashes: 6 total crash locations

- One-half on bus route roadways
- 1 on a road with a bike lane
- 2 on a shared roads
- 3 on roads without bike infrastructure

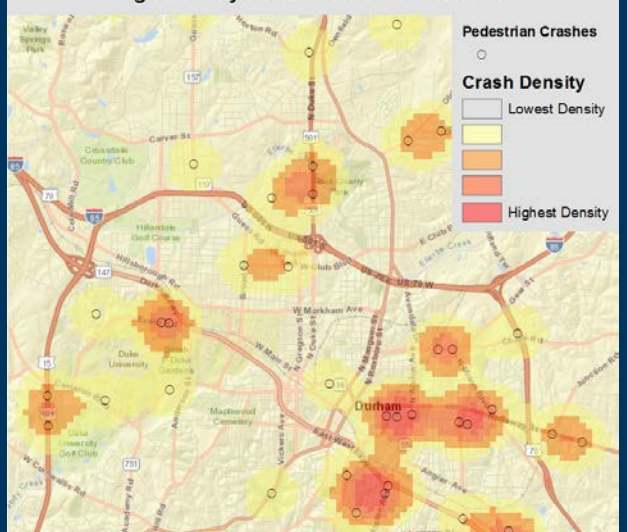
Crash Density: Motor Vehicle and Pedestrian Crashes

Non-Interstate Motor Vehicle Crash Density



High Motor Vehicle Crash Density Roads or Intersections:
- Apex Hwy from Riddle Rd to East-West Expy
- E Cornwallis Rd and Apex Hwy
- N Duke St and Denfield St
- Holloway St from Junction Rd to Clayton Rd
- S Miami Blvd from Stirrup Creek Dr to TW Alexander Dr
- N Roxboro St and Denfield St
- N Roxboro St from US-70 to W Carver St
- S Roxboro St from E Lawson St to Moline St
- University Dr and Chapel Hill Rd

High Density Pedestrian Crash Network



Roads with high pedestrian crash density:
- S Alston Ave between Jacobs St and East-West Espressway
- N Alston Ave between Liberty St and Eva St
- W Club Blvd between 9th St and N Gregson St
- N Duke St between Lorain Ave and Stadium Dr
- Erwin Rd between Fulton St and Trent Dr
- E Geer St between Grove St and Drew St
- Holloway St between S Hoover Rd and S Woodcrest St
- Liberty St between N Elizabeth St and N Briggs St
- Old Oxford Rd and Dearborn Rd

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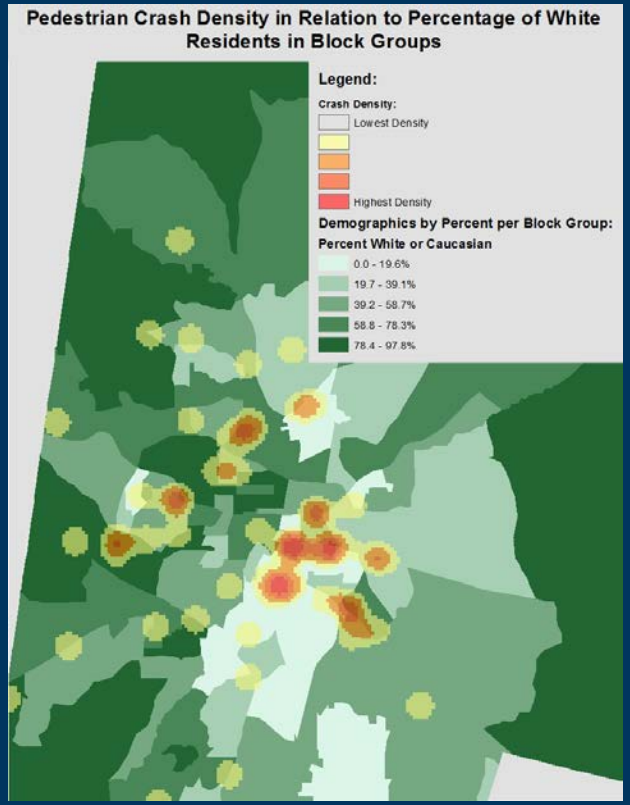
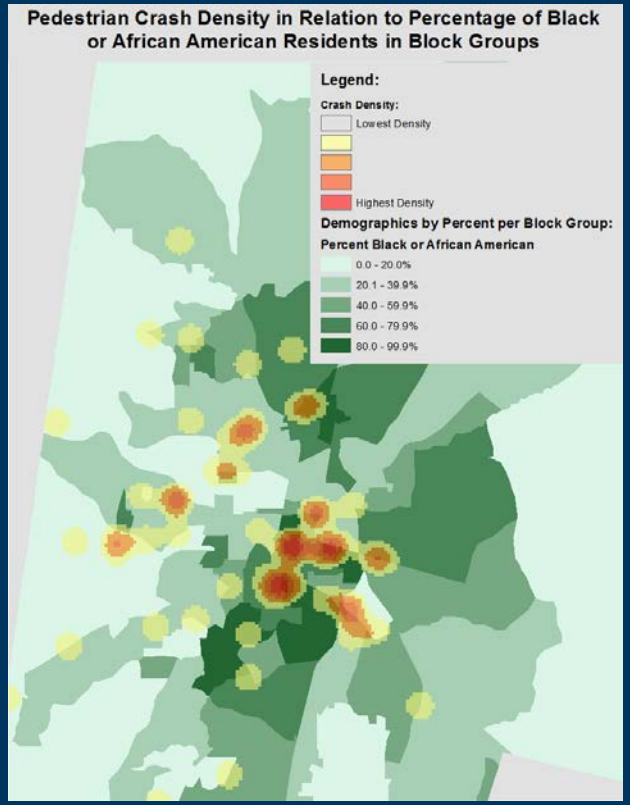
Equity Analysis: Visual Demonstration





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Crash Break Down

Crash Equity by Demographic or Characteristic in Block Groups								
Demographic/Characteristic:	Percent White by Block Group							
4th Quartile Minimum Value:	72.7%							
Percentage of Crashes in the 3rd Quartile by Type (crashes highlighted in red indicate a high occurrence, crashes highlighted in blue indicate a low occurence)								
All Crashes:	All Fatal Crashes:	All Incapacitating Crashes:	Pedestrian Crashes:	Fatal Pedestrian Crashes:	Incapacitating Pedestrian Crashes:	Bicycle Crashes:	Fatal Bicycle Crashes:	Incapacitating Bicycle Crashes:
18.8%	19.0%	18.9%	14.8%	25.0%	8.8%	33.3%	50.0%	0.0%

Crash Equity by Demographic or Characteristic in Block Groups								
Demographic/Characteristic:	Percent Black by Block Group							
4th Quartile Minimum Value:	53.0%							
Percentage of Crashes in the 3rd Quartile by Type (crashes highlighted in red indicate a high occurrence, crashes highlighted in blue indicate a low occurence)								
All Crashes:	All Fatal Crashes:	All Incapacitating Crashes:	Pedestrian Crashes:	Fatal Pedestrian Crashes:	Incapacitating Pedestrian Crashes:	Bicycle Crashes:	Fatal Bicycle Crashes:	Incapacitating Bicycle Crashes:
29.5%	32.8%	27.8%	29.6%	30.0%	29.4%	33.3%	25.0%	50.0%

Equity Analysis: Other Demographics

Crash Equity by Demographic or Characteristic in Block Groups								
Demographic/Characteristic:	Percent Latino by Block Group							
4th Quartile Minimum Value:	19.3%							
Percentage of Crashes in the 3rd Quartile by Type (crashes highlighted in red indicate a high occurrence, crashes highlighted in blue indicate a low occurence)								
All Crashes:	All Fatal Crashes:	All Incapacitating Crashes:	Pedestrian Crashes:	Fatal Pedestrian Crashes:	Incapacitating Pedestrian Crashes:	Bicycle Crashes:	Fatal Bicycle Crashes:	Incapacitating Bicycle Crashes:
28.0%	22.4%	30.7%	42.6%	25.0%	52.9%	16.7%	25.0%	0.0%

Crash Equity by Demographic or Characteristic in Block Groups								
Demographic/Characteristic:	Percent Asain by Block Group							
4th Quartile Minimum Value:	6.8%							
Percentage of Crashes in the 3rd Quartile by Type (crashes highlighted in red indicate a high occurrence, crashes highlighted in blue indicate a low occurence)								
All Crashes:	All Fatal Crashes:	All Incapacitating Crashes:	Pedestrian Crashes:	Fatal Pedestrian Crashes:	Incapacitating Pedestrian Crashes:	Bicycle Crashes:	Fatal Bicycle Crashes:	Incapacitating Bicycle Crashes:
19.8%	18.1%	20.8%	20.4%	10.0%	26.5%	16.7%	25.0%	0.0%

Crash Equity by Demographic or Characteristic in Block Groups								
Demographic/Characteristic:	Percent Other by Block Group							
4th Quartile Minimum Value:	5.1%							
Percentage of Crashes in the 3rd Quartile by Type (crashes highlighted in red indicate a high occurrence, crashes highlighted in blue indicate a low occurence)								
All Crashes:	All Fatal Crashes:	All Incapacitating Crashes:	Pedestrian Crashes:	Fatal Pedestrian Crashes:	Incapacitating Pedestrian Crashes:	Bicycle Crashes:	Fatal Bicycle Crashes:	Incapacitating Bicycle Crashes:
28.9%	24.1%	31.1%	37.0%	10.0%	52.9%	50.0%	25.0%	100.0%

Transportation Disadvantaged Communities

Goal: Create a simple visual representation for areas that

- **Experience a disproportionate bearing of crashes**
- **Are more likely to be vulnerable roadway users**
- **May receive greater benefit from improved multi-modal access**

Composite Index Parameters

- Percent Below poverty: Block groups in the 4th quartile
- Community of color: Block groups in the 4th quartile
- Limited English Speaking Proficiency: Block groups in the 4th quartile
- Median Household Income: Block groups in the 1st quartile
- Vulnerable Roadway Users: Percentage of individuals who take public transit, walk or bike to work: Block groups in the 4th quartile

Crash Break Down Tables

Crash Equity by Demographic or Characteristic in Block Groups								
Demographic/Characteristic: Percent Below Poverty by Block Group 4th Quartile Minimum Value: 27.2%								
Percentage of Crashes in the 3rd Quartile by Type (crashes highlighted in red indicate a high occurrence, crashes highlighted in blue indicate a low occurence)								
All Crashes:	All Fatal Crashes:	All Incapacitating Crashes:	Pedestrian Crashes:	Fatal Pedestrian Crashes:	Incapacitating Pedestrian Crashes:	Bicycle Crashes:	Fatal Bicycle Crashes:	Incapacitating Bicycle Crashes:
20.4%	19.0%	20.8%	42.6%	35.0%	47.1%	33.3%	25.0%	50.0%

Crash Equity by Demographic or Characteristic in Block Groups								
Demographic/Characteristic: Communities of Color (Percent Not White) by Block Group 4th Quartile Minimum Value: 66.4%								
Percentage of Crashes in the 3rd Quartile by Type (crashes highlighted in red indicate a high occurrence, crashes highlighted in blue indicate a low occurence)								
All Crashes:	All Fatal Crashes:	All Incapacitating Crashes:	Pedestrian Crashes:	Fatal Pedestrian Crashes:	Incapacitating Pedestrian Crashes:	Bicycle Crashes:	Fatal Bicycle Crashes:	Incapacitating Bicycle Crashes:
29.2%	28.4%	29.7%	16.7%	15.0%	17.6%	0.0%	0.0%	0.0%

Crash Equity by Demographic or Characteristic in Block Groups								
Demographic/Characteristic: Percent of Household with Limited English Speaking Proficiency 4th Quartile Minimum Value: 6.0%								
Percentage of Crashes in the 3rd Quartile by Type (crashes highlighted in red indicate a high occurrence, crashes highlighted								
All Crashes:	All Fatal Crashes:	All Incapacitating Crashes:	Pedestrian Crashes:	Fatal Pedestrian Crashes:	Incapacitating Pedestrian Crashes:	Bicycle Crashes:	Fatal Bicycle Crashes:	Incapacitating Bicycle Crashes:
21.9%	18.1%	23.6%	31.5%	25.0%	35.3%	0.0%	0.0%	0.0%

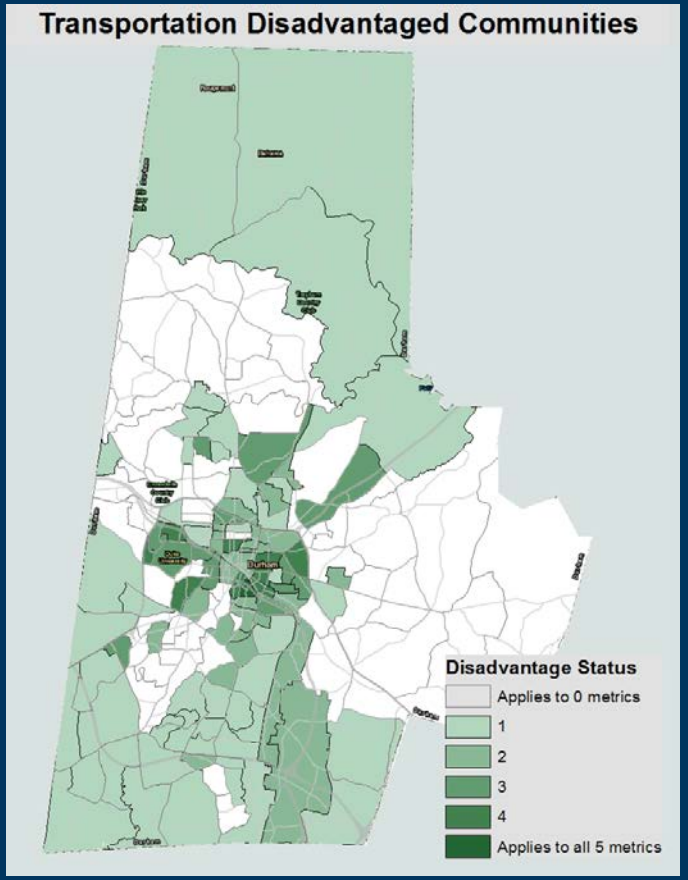
Crash Break Down Tables

Crash Equity by Demographic or Characteristic in Block Groups								
Demographic/Characteristic: Percent of Individuals Bike, Walk or Take Public Transit by Block Group 4th Quartile Minimum Value: 15.1%								
Percentage of Crashes in the 3rd Quartile by Type (crashes highlighted in red indicate a high occurrence, crashes highlighted in blue indicate a low occurence)								
All Crashes:	All Fatal Crashes:	All Incapacitating Crashes:	Pedestrian Crashes:	Fatal Pedestrian Crashes:	Incapacitating Pedestrian Crashes:	Bicycle Crashes:	Fatal Bicycle Crashes:	Incapacitating Bicycle Crashes:
21.6%	17.2%	24.1%	33.3%	30.0%	35.3%	33.3%	25.0%	50.0%

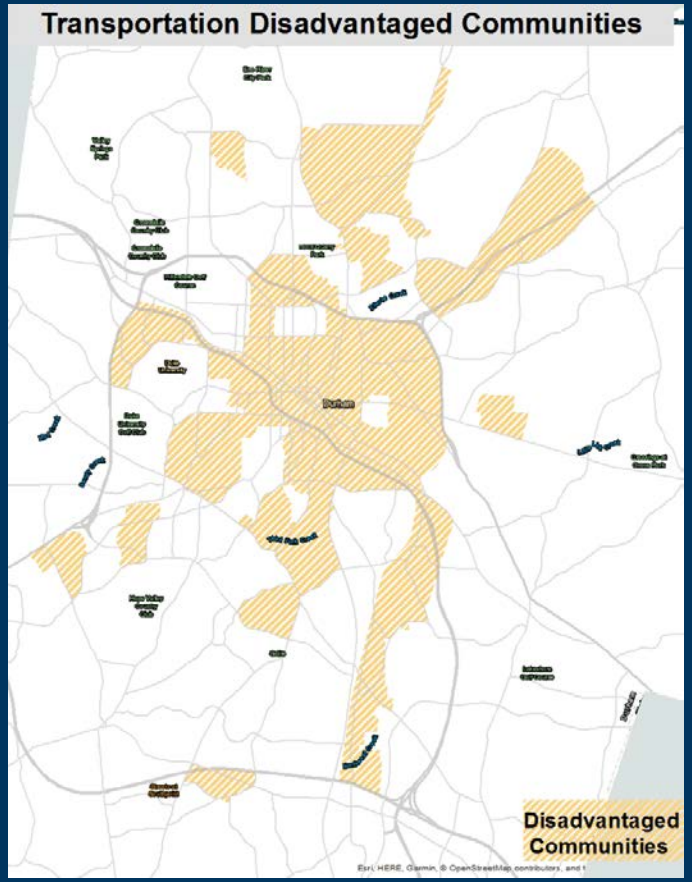
Crash Equity by Demographic or Characteristic in Block Groups								
Demographic/Characteristic: Median Household Income by Block Group **1st Quartile Maximum Value:** 34679.5								
Percentage of Crashes in the 1st Quartile by Type (crashes highlighted in red indicate a high occurrence, crashes highlighted in blue indicate a low occurence)								
All Crashes:	All Fatal Crashes:	All Incapacitating Crashes:	Pedestrian Crashes:	Fatal Pedestrian Crashes:	Incapacitating Pedestrian Crashes:	Bicycle Crashes:	Fatal Bicycle Crashes:	Incapacitating Bicycle Crashes:
21.9%	25.0%	20.3%	13.0%	20.0%	8.8%	16.7%	0.0%	50.0%

Crash Equity by Demographic or Characteristic in Block Groups								
Demographic/Characteristic: Disadvantage Status by Block Groups 4th Quartile Minimum Value: 2								
Percentage of Crashes in the 3rd Quartile by Type (crashes highlighted in red indicate a high occurrence, crashes highlighted								
All Crashes:	All Fatal Crashes:	All Incapacitating Crashes:	Pedestrian Crashes:	Fatal Pedestrian Crashes:	Incapacitating Pedestrian Crashes:	Bicycle Crashes:	Fatal Bicycle Crashes:	Incapacitating Bicycle Crashes:
20.0%	18.1%	20.7%	41.5%	35.0%	45.5%	33.3%	25.0%	50.0%

Transportation Disadvantaged Communities



Transportation Disadvantaged Communities



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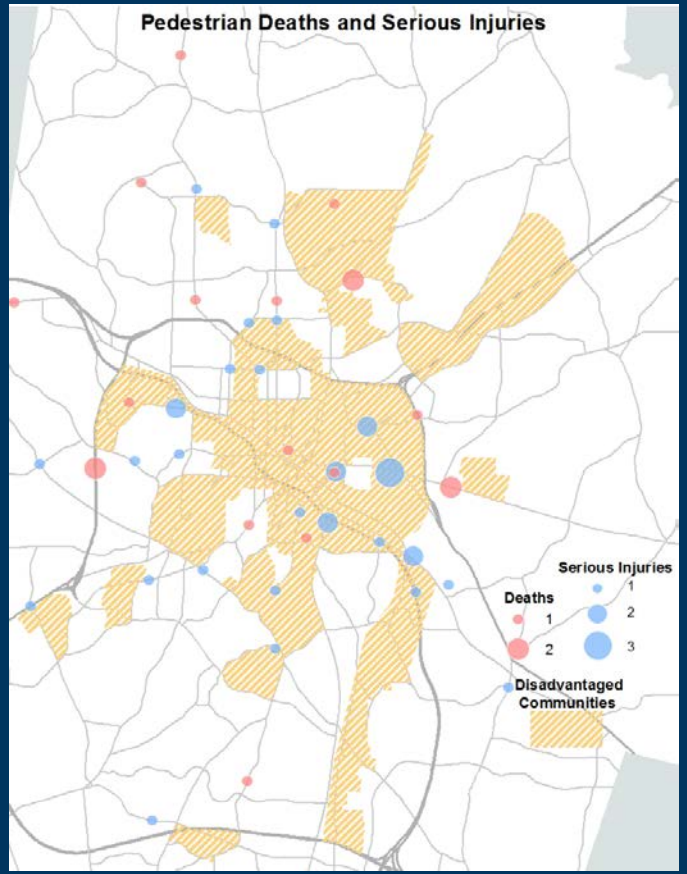

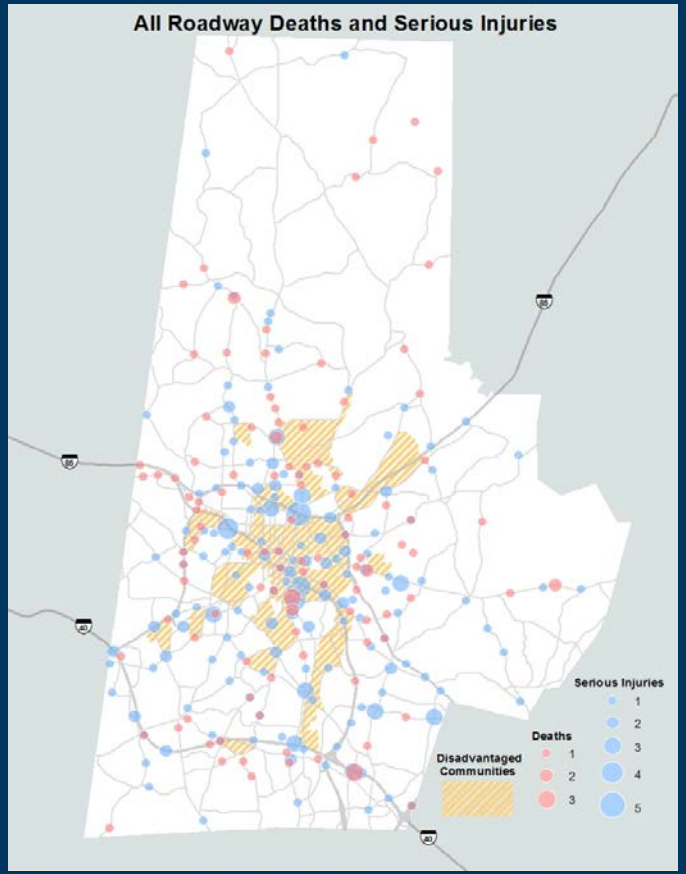

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Questions?

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